

Preliminary Amendment

Applicant: Oskar Neuhoff et al.

Serial No.: Unknown

(Priority Application No. DE 102 17 792.9)

(International Application No. PCT/DE03/01278)

Filed: Herewith

(Priority Date: April 20, 2002)

(International Filing Date: April 16, 2003)

Docket No.: I431.115.101/FIN 387 PCT/US

Title: PACKAGING SYSTEM WITH A TOOL FOR ENCLOSING ELECTRONIC COMPONENTS AND METHOD OF POPULATING A CARRIER TAPE (As Amended)

IN THE CLAIMS

Please cancel claims 1-22 without prejudice.

Please add claims 23-45 as follows:

Patent Claims WHAT IS CLAIMED IS:

1-22. (Cancelled)

23. (New) A method of populating a carrier tape with components, comprising:
providing a packaging system;
providing a carrier tape in the packaging system with passage openings for populating the carrier tape with components;
picking up individual components from a support table arranged underneath a guide plate of the packaging system by means of a vacuum pipette;
lifting the component into one of the passage openings in the carrier tape by means of a vertical lifting movement of the vacuum pipette;
wiping the component off the vacuum pipette by means of the carrier tape;
picking up the component and the carrier tape as they are wiped off the vacuum pipette by means of an upper guide and by means of a lower guide;
closing an upper side of the tape by applying an upper cover film; and
closing an under side of the tape by applying a lower cover film.

24. (New) The method of claim 23, wherein the components are lifted from below by a lifting needle.

25. (New) The method of claim 24, wherein the vacuum pipette and the lifting needle carry out a vertical lifting movement through a first opening in the guide plate.

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26. (New) The method of claim 23, wherein at least the vacuum pipette carries out a horizontal movement in a conveying direction of the carrier tape as it inserts a component into a passage opening in the carrier tape.

27. (New) The method of claim 23, wherein the lower cover film is applied underneath a vacuum suction device, which prevents the components falling out of the passage openings in the carrier tape.

28. (New) The method of claim 23, wherein the upper and lower cover film are applied by means of a heating device in an adhesive manner to the upper side of the tape and to the underside of the tape.

29. (New) The method of claim 23, wherein the upper and the lower cover film are adhesively bonded to the upper side and underside of the tape.

30. (New) The method of claim 23, wherein the carrier tape used is a paper tape which has passage openings to hold components.

31. (New) A packaging system comprising:

- a guide plate for the linear guidance of a carrier tape that can be populated with components;

- a passage opening being provided in the guide plate;

- at least one cover film device for applying a cover film; and

- a carrier-tape populating tool, wherein the carrier-tape populating tool has a vacuum pipette and a lifting needle, wherein a lifting movement can be carried out by the carrier-tape populating tool, and wherein the carrier-tape populating tool can be moved through the passage opening in the guide plate.

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32. (New) The packaging system of claim 31, wherein the vacuum pipette has a lifting direction at right angles to a conveying direction of the carrier tape and through the passage openings in the latter.

33. (New) The packaging system of claim 31, wherein the lifting needle has a lifting direction at right angles to a conveying direction of the carrier tape and as far as a lower edge of the passage openings in the latter.

34. (New) The packaging system of claim 31, wherein lifting movements of the vacuum pipette and of the lifting needle are in each case synchronized.

35. (New) The packaging system of claim 32, wherein the vacuum pipette has a horizontal movement component in the same direction as the conveying direction of the carrier tape.

36. (New) The packaging system of claim 31, wherein the components are applied to a blank in rows and in columns, and are held together by a carrier film.

37. (New) The packaging system of claim 36, wherein the blank with the carrier film is applied to a support table that can be displaced horizontally.

38. (New) The packaging system of claim 37, wherein the support table can be displaced in a first horizontal direction parallel to the conveying direction of the carrier tape and in a second horizontal direction at right angles thereto.

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39. (New) The packaging system of claim 37, wherein the support table has a second opening of greater diameter than the lifting needle, which can in each case be brought into a position located vertically underneath a passage opening in the carrier tape.

40. (New) The packaging system of claims 31, wherein the guide plate has a first opening of greater diameter than an outline of a component, through which opening the linear lifting axes of the vacuum pipette and of the lifting needle extend centrally.

41. (New) The packaging system of claim 31, further including a feed device for the upper cover film behind the pick-up device in a conveying direction of the carrier tape.

42. (New) The packaging system of claims 31, further including a feed device for the lower cover film behind the pick-up device in a conveying direction of the carrier tape.

43. (New) The packaging system of claims 42, wherein the feed device for the lower cover film is arranged behind a feed device for the upper cover film in the conveying direction of the carrier tape.

44. (New) The packaging system of claim 42, further including a vacuum suction device provided above the feed device for the lower cover film, to raise the electronic components into their passage openings.

45. (New) A packaging system comprising:
a guide plate for the linear guidance of a carrier tape that can be populated with components;
a passage opening being provided in the guide plate;
at least one cover film device for applying a cover film; and

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means for populating the carrier tape including a vacuum pipette and a lifting needle,
wherein the means for populating has a lifting movement and can be moved through the
passage opening in the guide plate.